REMARKS

Claims 11, 12, 14-16, 18-20, 22 and 23 stand rejected under 35 U.S.C. § 102(b), as variously anticipated by U.S. Patent Nos. 1,695,525 ("*Booth*"), 4,811,992 ("*Steiner*") and German Patent DE3823442 ("*Mahnig*"). Applicant respectfully traverses this rejection.

The present application describes a wheel hub comprising a cylindrical main body with a radial flange. A plurality of radial ribs extend between the outboard side of the radial flange and the main body. The ribs are positioned to provide support for the outboard end of the main body. The position of the ribs is particularly important, for example, where additional support is required at the outboard end of the wheel hub to inhibit deformation of the wheel hub caused by the forces from turning the wheel during steering.

Independent claims 11, 16 and 20 of the present application have now been amended to reflect that the ribs are positioned at the outboard end of the wheel hub. The amendments are supported by the specification of the present application, which discloses that the ribs are positioned to support the outboard end of the main body, in contrast to conventional wheel hubs where the outboard end is unsupported (pp. 13-14, Figs. 9-10). New independent claim 30 similarly describes the ribs positioned adjacent the bearing at the outboard end of the wheel hub. New claims 24, 26 and 28 are also supported by the specification, which describes a "front steer axle hub" as one embodiment of the invention (p. 7, Figs. 4-6). New claims 25, 27 and 29 are supported by Figs. 4-6, which clearly depict a one-piece wheel hub.

In contrast to the present application, *Booth* discloses an ***inboard*** ribbed wheel hub. Contrary to the Examiner's arguments, *Booth* does not disclose "tapered ribs extending between the body and the flange." As shown in Fig. 2, reinforcing ribs 5 (col. 1, lines 36-37) are press formed in flange 2, such that they project from the inboard side of the flange, opposite spoked wheel 12. Ribs 5 are set at an angle relative to the axial bore of the wheel hub and, therefore, are subject to a bending load and do not directly resist compressive forces on the wheel hub. Accordingly, *Booth* does not disclose a rib that "directly resists compressive forces directed normal to said centerline of said axial bore," as set forth in independent claim 16 of the present application. Furthermore, because ribs 5 project from the inboard side of the flange, they cannot "[contact] said radial flange on said inboard side of said … rib," as set forth in independent claim 20 of the present application.

In addition, press formed ribs 5 create corresponding recesses 7 on the outboard side of flange 2, that are filled with a brazing material 9 to hold a ring 8. (Col. 1, lines 44-51.) Thus, there are no outboard ribs formed in recesses 7. Accordingly, *Booth* does not disclose a rib "positioned ... in said cavity formed by said flange and said main body," as set forth in independent claim 11 of the present application.

Steiner discloses a two-piece wheel hub for "trailer axles" (col. 1, line 7), which appears to have outboard ribs extending between the flange and the main body of the outer hub 14. Because the wheel hub is used with trailer axles, it is not subject to the turning forces experienced by steer axles. Thus, the ribs are positioned at the inboard end of the hub to provide support for the inboard bearing. *Mahnig* similarly discloses a wheel hub, where the ribs are positioned at the inboard end of the hub for use on a trailer or drive axle.

The two-piece wheel hubs disclosed by *Steiner* and *Mahnig* cannot readily be modified by moving the position of the ribs toward the outboard end of the hub. The ribs do not serve as load carrying members in the prior art two-piece wheel hubs. Rather, stresses are distributed by the contact points between the inner and outer hubs -- e.g., tapered seats 15 and 16 of *Steiner* (Fig. 2). Changing the position of the ribs would alter the load distribution between the tapered seats, which would result in reduced life expectancy of the bearings. Thus, the prior two-piece wheel hub design teaches away from a hub having ribs positioned at the outboard end.

Independent claims 11, 16 and 20 of the present application have now been amended to state that the ribs are either "positioned at said outboard end" (claims 11 and 20) of the wheel hub or positioned to "[support] said outboard end of said main body" (claim 16). New dependent claims 24-26 expressly state that the wheel hub is a "front steer axle hub." The remaining claims 12-15, 17-19 and 21-23 are all depend from independent claims 11, 16 and 20. Accordingly, claims 11-30, as amended, are believed to be distinguishable over the prior art.

Claims 13, 17 and 21 stand rejected under 35 U.S.C. § 103(a) as obvious in view of *Steiner*. In particular, the Examiner suggests that it would be obvious to modify the "somewhat straight" flange of *Steiner* to form a "smooth continuous curve" as a "mechanical expedient [to] facilitate casting of the flange." Applicant respectfully traverses this rejection.

Claims 13, 17 and 21 depend from independent claims 11, 16 and 20, which are believed to be distinguishable over *Steiner*, as set forth above. Accordingly, Claims 13, 17 and 21 are believed to be patentable over the prior art.

In addition, applicant respectfully disagrees with the Examiner's assertion that it would be obvious to facilitate casting of the wheel hub by forming a "smooth continuous curve" on the inboard side of the flange. There is no practical difference in the process of casting the "somewhat straight" flange of *Steiner* compared to the smooth, continuously curved flange of the present application. Furthermore, the smooth continuous curve eliminates cross-sectional changes in the profile of the flange that are susceptible to developing cracks under stress, as set forth in the specification of the present application. *Steiner* does not describe the configuration of the flange, nor does it otherwise teach or suggest the desirability of providing the flange with a smooth continuously curved profile to reduce the susceptibility to stress cracks.

CONCLUSION

In view of the foregoing, applicant respectfully submits that claims 11-30 are patentable over the prior art. Should the Examiner believe that a conversation with applicant's representative would be useful in the prosecution of this case, the Examiner is invited to call applicant's representative at the number listed below.

Respectfully submitted,

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